

## § 39.2003

(ii) One or more 15.9 millimeter (0.625 inch) diameter hole(s) located midway between boltholes and in line with the bolthole pattern; and

(6) Be abrasion and kinking resistant.

(j) Each vessel vapor connection flange face must have a permanent stud projecting outward that has a 12.7 millimeter (0.5 inch) diameter and is at least 25.4 millimeters (1 inch) long. It must be located at the top of the flange face, midway between boltholes, and in line with the bolthole pattern.

(k) Quick disconnect couplings (QDCs) may be used instead of flanges at the flexible hose connection and fixed piping on tankships provided they meet ASTM F1122 (incorporated by reference, see 46 CFR 39.1005) and are designed as "Standard Class QDC."

(l) Hose saddles that provide adequate support to prevent kinking or collapse of hoses must accompany vapor hose handling equipment.

(m) For cargoes that have toxic properties, listed in 46 CFR Table 151.05 with the "Special requirements" column referring to 46 CFR 151.50-5, an overfill alarm and shutdown system that meet the requirements of 46 CFR 39.2007(a), 39.2009(a), or 39.2009(b) must be used for primary overfill protection. If the vessel is also equipped with spill valves or rupture disks, their setpoints must be set higher than the vessel's pressure relief valve setting as required by 46 CFR 39.2009(a)(3).

## § 39.2003 Cargo gauging system—TB/ALL.

(a) A cargo tank of the tank vessel connected to a vapor collection system must be equipped with a permanent or portable cargo gauging device that—

(1) Is a closed type as defined in 46 CFR 151.15.10(c) that does not require opening the tank to the atmosphere during cargo transfer;

(2) Allows the operator to determine the level of liquid in the tank for the full range of liquid levels in the tank;

(3) Has an indicator for the level of liquid in the tank that is located where cargo transfer is controlled; and

(4) If portable, is installed on the tank during the entire transfer operation.

(b) Each cargo tank of a tank barge must have a high-level indicating de-

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vice, unless the barge complies with 46 CFR 39.2009(a). The high-level indicating device must—

(1) Indicate visually the level of liquid in the cargo tank when the liquid level is within a range of 1 meter (3.28 feet) of the top of the tank;

(2) Show a permanent mark to indicate the maximum liquid level permitted under 46 CFR 39.3001(e) at even keel conditions; and

(3) Be visible from all cargo control areas.

## § 39.2007 Tankship liquid overfill protection—T/ALL.

(a) Each cargo tank of a tankship must be equipped with an intrinsically safe high-level alarm and a tank overfill alarm.

(b) If installed after July 23, 1990, the high-level alarm and tank overfill alarm required by paragraph (a) of this section must—

(1) Be independent of each other;

(2) Activate an alarm in the event of loss of power to the alarm system;

(3) Activate an alarm during the failure of electrical circuitry to the tank level sensor; and

(4) Be able to be verified at the tank for proper operation prior to each transfer. This procedure may be achieved with the use of an electronic self-testing feature that monitors the condition of the alarm circuitry and sensor.

(c) The high-level alarm required by paragraph (a) of this section must—

(1) Activate an alarm once the cargo level reaches 95 percent of the tank capacity or higher, but before the tank overfill alarm;

(2) Be identified with the legend "High-level Alarm" in black letters at least 50.8 millimeters (2 inches) high on a white background; and

(3) Activate a visible and audible alarm so that it can be seen and heard on the vessel where cargo transfer is controlled.

(d) The tank overfill alarm required by paragraph (a) of this section must—

(1) Be independent of the cargo gauging system;

(2) Be identified with the legend "TANK OVERFILL ALARM" in black letters at least 50.8 millimeters (2 inches) high on a white background;